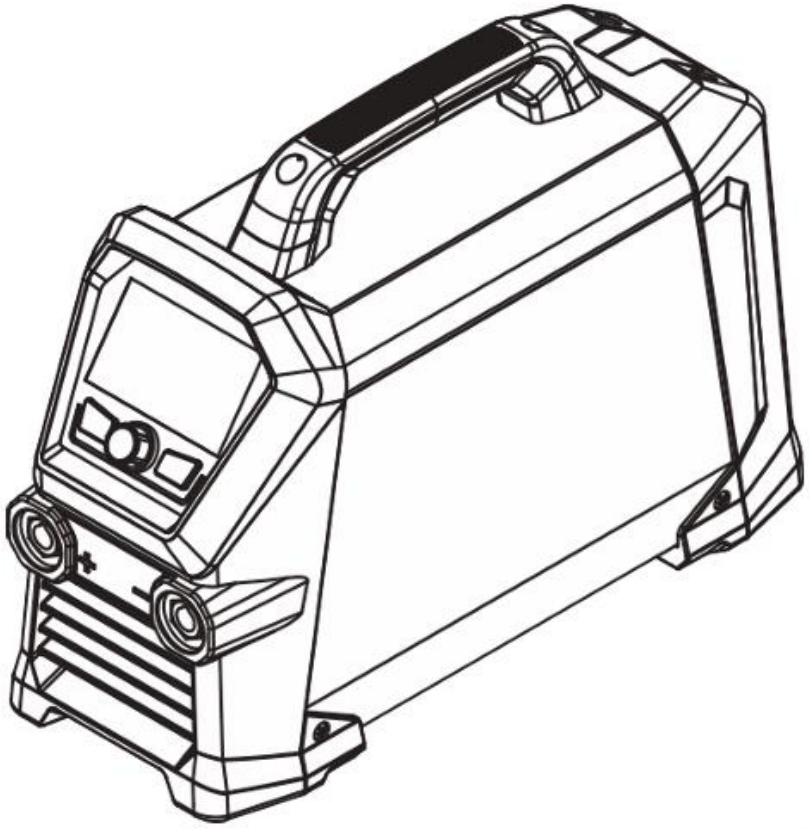
böhler
welding by voestalpine

Lasting Connections

CORE 210 MMA

USER MANUAL



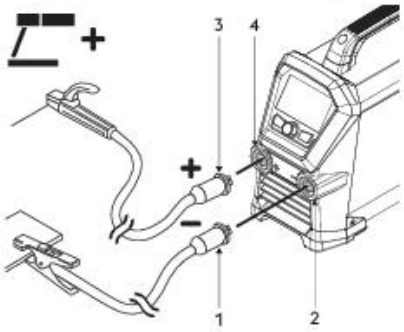
voestalpine Böhler Welding
www.voestalpine.com/welding

voestalpine
ONE STEP AHEAD.

Code 91.08.608 Date 01/09/2025 First Edition

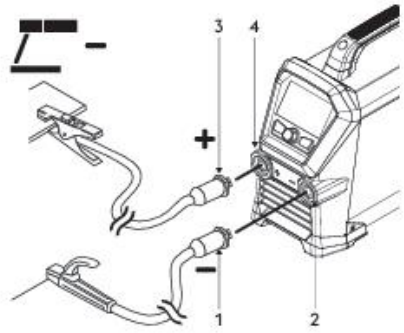
3.4 Installation

3.4.1 Connection for MMA welding



1 Earth clamp connector
2 Negative power socket (-)
3 Electrode holder clamp connector
4 Positive power socket (+)

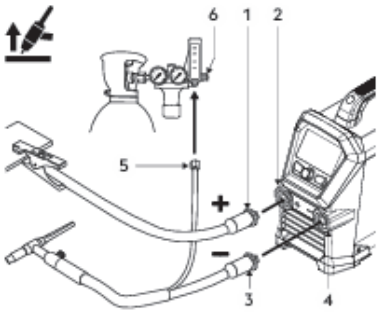
- Connect the earth clamp to the negative socket (-) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the electrode holder to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.



1 Electrode holder clamp connector
2 Negative power socket (-)
3 Earth clamp connector
4 Positive power socket (+)

- Connect the electrode holder cable connector to the negative (-) socket of the generator. Insert the plug and turn clockwise until all parts are secured.
- Connect the earth clamp to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.

3.4.2 Connection for TIG welding

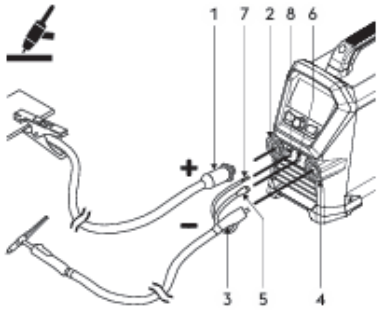


1 Earth clamp connector
2 Positive power socket (+)
3 TIG torch fitting
4 Negative power socket (-)
5 Gas pipe connector
6 Pressure reducer

- Connect the earth clamp to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the TIG torch coupling to the torch socket of the power source. Insert the plug and turn clockwise until all parts are secured.

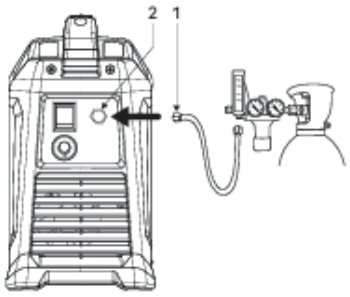
The protection gas flow can be adjusted using the tap normally found on the torch.

- Separately connect the torch gas hose connector to the gas main.



1 Earth clamp connector
2 Positive power socket (+)
3 TIG torch fitting
4 Torch socket
5 Torch signal cable
6 Connector
7 Torch gas tube
8 Connection-union

- Connect the earth clamp to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the TIG torch connector to the negative socket (-) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the signal cable of the torch to the appropriate connector.
- Connect the gas hose of the torch to the appropriate union/connection.

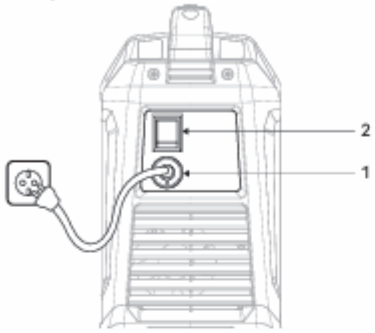


1 Gas tube
2 Rear gas connection

- Connect the gas hose from the cylinder to the rear gas connection. Adjust the gas flow from 5 to 15 l/min.

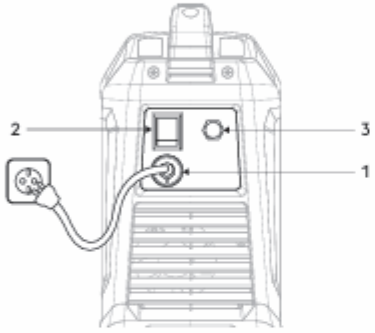
4. SYSTEM PRESENTATION

4.1 Rear panel



1 **Power supply cable**
Connects the system to the mains.

2 **Off/On switch**
Turns on electric power.
It has two positions, "O" off, and "I" on.

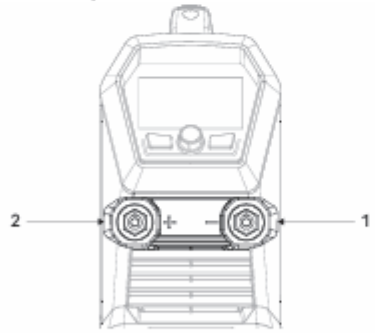


1 **Power supply cable**
Connects the system to the mains.

2 **Off/On switch**
Turns on electric power.
It has two positions, "O" off, and "I" on.

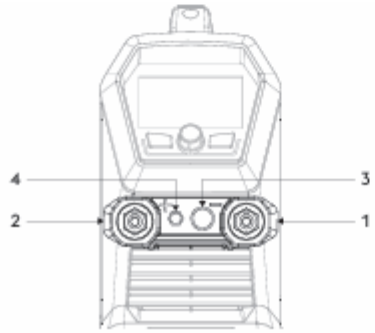
3 **Gas fitting**

4.2 Sockets panel



1 **Negative power socket (-)**
Process MMA: Connection earth cable
Process TIG: Torch connection

2 **Positive power socket (+)**
Process MMA: Connection electrode torch
Process TIG: Connection earth cable



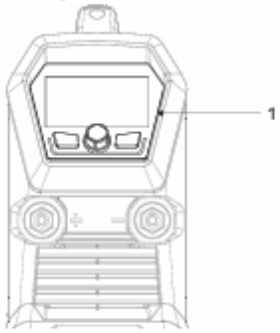
1 **Negative power socket (-)**
Process MMA: Connection earth cable
Process TIG: Torch connection

2 **Positive power socket (+)**
Process MMA: Connection electrode torch
Process TIG: Connection earth cable

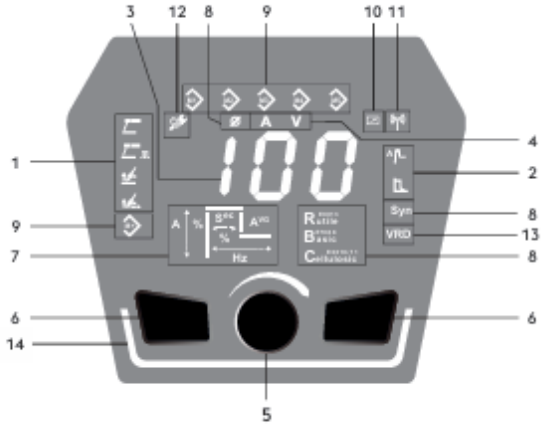
3 **Gas fitting**

4 **Torch button connection**

4.3 Front control panel



1 Front control panel



1 **Selector of the welding process**

Allows the selection of the welding procedure.

- MMA welding process
- Pulsed MMA welding process
- TIG LIFT welding process
- TIG LIFT spot welding process

2 **Functions**

Let you select the various system functions:

- Hot start
- Arc force

3 888 **7-segment display**

Allows the general welding machine parameters to be displayed during start-up, settings, current and voltage readings, while welding, and encoding of the alarms.

4 **Measurements selector**

Allows to view the actual welding current or voltage on the display.

- A Amperes
- V Volts

5 **Main adjustment handle.**

Allows the welding current to be continuously adjusted.

6 **Function keys**

Let you select the various system functions:

7 **Welding parameters**

The graph on the panel allows the selection and adjustment of the welding parameters.

8 **Syn** Material type synergy

Allows selection of the desired welding mode.

Ø Electrode diameter synergy

R E6013 Rutile

B E70XX Basic

C E6010/11 Cellulosic

9 **Program storage**

Allows the storage and management of 5 jobs which can be personalised by the operator.

10 **External devices (RC)**

11 **External devices (wireless)**

12 **Maintenance warning**

13 **VRD** VRD (Voltage Reduction Device)

Voltage Reduction Device
Allows output voltage to be reduced within the limits set by regulations for use in harsh environments.
Active function (Green)
Default: OFF (icon light off)
Contact the Service Dpt. to request activation instructions (eq-service@voestalpine.com).

14 **LED bars**

System in standby (White)
System switched on and arc ignited (Green)
System in error alarm (Red)
System in warning alarm (Orange) (=25% duty cycle remaining)
System in wireless configuration (Blue)

5. EQUIPMENT USE

5.1 Main Screen

Main Screen

1. Welding process symbol
   - Process selected (Green).
   - Process available (White).
2. Function symbol
   - Function enabled (White).
   - Selection and adjustment of the required parameter (Green.)
3. Selector of the welding process.
4. They allow adjustment of the welding parameters. (press to scroll and select the parameters to change).

Allows the regulation of the welding current. (turn to change the value).

5.2 MMA process main screen

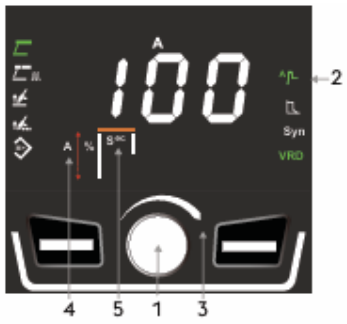
Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Selection and adjustment of the required parameter (Green.)
4. They allow adjustment of the welding parameters. (press to scroll and select the parameters to change).

Allows the regulation of the welding current. (turn to change the value).

Welding current

Minimum	Maximum	Default
20 A	Imax	100 A



Parameter setting: Hot start

1. Select the required parameter by pressing the encoder button.
2. Selected function for parameter adjustment (Green).
3. Adjust the value of the selected parameter by rotating the encoder.

Welding parameters

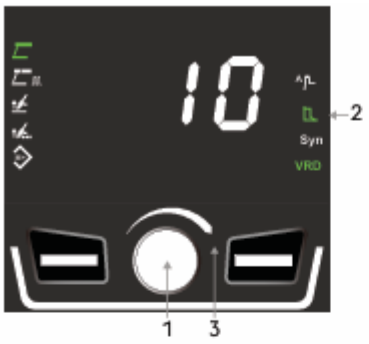
4. Start current.
5. Start time.

Start current

Minimum	Maximum	Default
50%	200%	120%

Start time

Minimum	Maximum	Default
0s	3s	0.5s



Parameter setting: Arc force

1. Select the required parameter by pressing the encoder button.
2. Selected function for parameter adjustment (Green).
3. Adjust the value of the selected parameter by rotating the encoder.

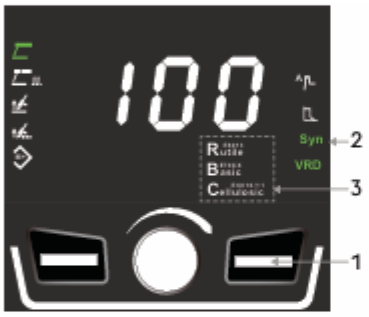
Welding parameters

Arc force

Minimum	Maximum	Default
-10	+10	0

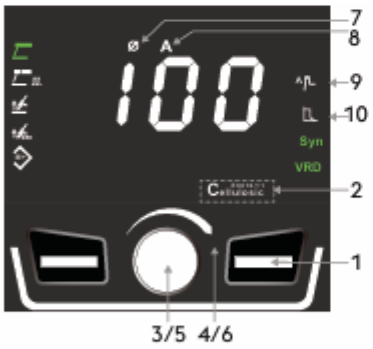
5.3 Selecting synergy parameters

Function only available in the MMA process.



Synergy enabling

1. Press and hold the button for 3 seconds to enable synergy functions.
2. Function enabled (Green).
3. Synergic programs (White).



Parameter setting

1. Press the button to select the desired electrode
   - Ø: active diameter selection.
   - Turn the encoder to select the desired diameter.
   - Welding current adjustment becomes available again after 3 seconds.
2. Synergy
3. Press the encoder button to select the electrode diameter parameter.
4. Turn the encoder to select an electrode diameter value.
   - A pre-selection of welding parameter values will be loaded automatically.

Welding parameters can be further adjusted:

5. Press the encoder button to activate adjustment of the desired parameter.
6. Adjust the value of the selected parameter by rotating the encoder.

Welding parameters

7. Electrode diameter synergy.
8. Welding current.
9. Hot start.
10. Arc force.

EQUIPMENT USE

Rutile electrode

Diameter	Welding current	Hot start	Arc force
2.0	40A	100% 0s	-5
2.5	60A	100% 0s	-5
3.2	100A	100% 0s	-5
4.0	135A	100% 0s	-5

Basic electrode

Diameter	Welding current	Hot start	Arc force
2.0	65A	120% 0,5s	3
2.5	90A	120% 0,5s	3
3.2	130A	120% 0,5s	3
4.0	160A	120% 0,5s	3

Cellulosic electrode

Diameter	Welding current	Hot start	Arc force
2.0	55A	120% 0,5s	7
2.5	75A	120% 0,5s	7
3.2	110A	120% 0,5s	7
4.0	130A	120% 0,5s	7

Table of default values

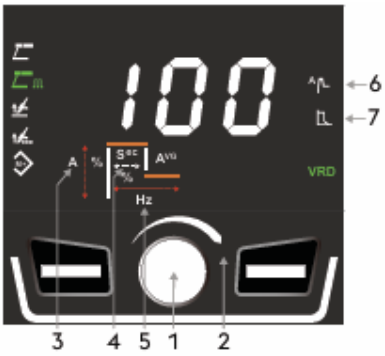
5.4 Pulsed MMA process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Welding current (average value).
4. Allows the regulation of the welding current.

Welding current

Minimum	Maximum	Default
20 A	Imax	100 A

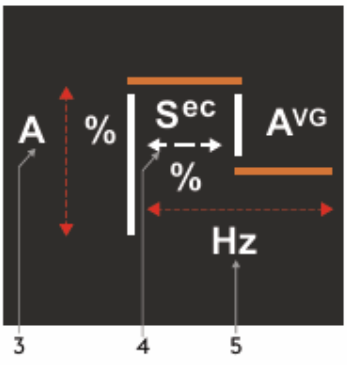


Parameter setting

1. Activate the regulation of the selected parameter by pressing the encoder button.
2. Adjust the value of the selected parameter by rotating the encoder.

Welding parameters

3. Current pulsation.
4. Duty cycle.
5. Pulse frequency.
6. Hot start.
7. Arc force.



Current pulsation

Minimum	Maximum	Default
100%	260%	140%

Duty cycle

Minimum	Maximum	Default
10%	90%	50%

Pulse frequency

Minimum	Maximum	Default
0.2Hz	5Hz	0.2Hz

5.5 TIG Lift process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Welding current.
4. Allows the regulation of the welding current.

Welding current

Minimum	Maximum	Default
10 A	Imax	100 A

See the setup chapter for parameter settings.

5.6 TIG LIFT spot welding process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Welding current.
4. Allows the regulation of the welding current.

Welding current

Minimum	Maximum	Default
10 A	Imax	100 A

Parameter setting

1. Activate the regulation of the selected parameter by pressing the encoder button.
2. Adjust the value of the selected parameter by rotating the encoder.

Welding parameters

3. Welding time.

Welding time

Minimum	Maximum	Default
0s	60s	0,5s

See the setup chapter for parameter settings.

5.7 Programs screen (JOB POINT)

Main Screen

1. Press and hold the button for 3 seconds.
2. Function enabled (Green).
3. Memory empty (White).
4. Program stored (Green).

Program storage

1. Press the button to select the desired memory slot.
2. Memory empty (White).
3. Press the encoder button to store the welding parameters (3 seconds).The colour of the memory slot icon changes from white to green.

Program retrieval

1. Select the required program by pressing button..
2. Program stored (Green).
3. Changing the welding parameters or changing the welding process is signalled by the colour of the memory slot icon changing to red.
4. Press the encoder button until the slot icon turns green again to restore the initial stored parameters (3 seconds).

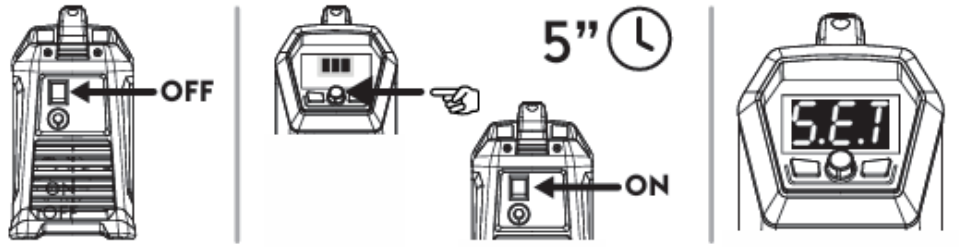
Deleting a program

1. Select the required program by pressing button..
2. Program stored (Green).
3. Press the encoder key until the slot icon turns white to delete the job (3 seconds.)

6. SETUP

Permits set-up and adjustment of a series of additional parameters for improved and more accurate control of the welding system.

Entry to set up



- Set the switch lever to "0" to switch off the generator.
- Switch on the generator while holding down the encoder key.
- Press and hold the encoder button for 5 sec.
- The entry will be confirmed by the writing SEt on the display

Selection and adjustment of the required parameter

- Rotate the encoder until you display the numerical code for the required parameter.
- If the encoder key is pressed at this point, the value set for the parameter selected can be displayed and adjusted.

Exit from set up

- Press the encoder button for 5 seconds to exit setup.

6.7.1 List of set up parameters (TIG)

`Pog` **Post-gas**

Permits setting and adjustment of the gas flow at the end of welding.

Minimum	Maximum	Default
0 s	20.0 s	6.0 s

`A1` **Initial current (%-A)**

Allows regulation of the weld starting current.
Allows a hotter or cooler welding pool to be obtained immediately after the arc striking.

Minimum	Maximum	Default
10 %	200 %	25 %

`t1` **Initial current time**

Allows setting of the time for which the initial current is maintained.

Minimum	Maximum	Default
0 s	10 s	0.2 s

`tuP` **Slope-up**

Allows you to set a gradual passage between the initial current and the welding current.

Minimum	Maximum	Default
0 s	10.0 s	0.5 s

tdn **Slope-down**

Allows you to set a gradual passage between the welding current and the final current.

Minimum	Maximum	Default
0s	3s	0.5s

A2 **Final current (%-A)**

Permits adjustment of the final current.

Minimum	Maximum	Default
10 %	200 %	25 %

t2 **Final current time**

Makes it possible to set the time for which the final current is maintained.

Minimum	Maximum	Default
0 s	10.0 s	0.2 s

SPo **Spot welding**

Allows you to enable the "spot welding" process and establish the welding time.
Allows the timing of the welding process.

AcT always active

☞ Description of functioning with solenoid gas valve.

When using a model with an external gas valve, the gas valve must be opened manually.

- Touch the workpiece with the electrode to start the pre-gas phase.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc.
- The arc remains active for the set time.

2T 2 Step

☞ Description of functioning with solenoid gas valve.

When using a model with an external gas valve, the gas valve must be opened manually.

- Touch the workpiece with the electrode.
- Press the torch button to start pre-gas.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc.
- The arc remains active for the set time.

Minimum	Maximum	Default
0.1 s	60.0 s	0.5 s

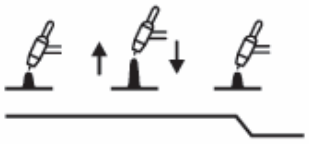
trt **Trigger Tig**

AcT always active

Description of functioning with solenoid gas valve.

When using a model with an external gas valve, the gas valve must be opened manually.

- Touch the workpiece with the electrode to start the pre-gas phase.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc.
- Fluctuating the torch extinguishes the arc. Gas continues to flow for the post-gas time.



2T 2 Step

Description of functioning with solenoid gas valve.

When using a model with an external gas valve, the gas valve must be opened manually.

- Touch the workpiece with the electrode.
- Press the torch button to start pre-gas.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc.
- By releasing the button again, the arc goes out and the gas continues to flow for the post-gas stage.

4T 4 Step

Description of functioning with solenoid gas valve.

When using a model with an external gas valve, the gas valve must be opened manually.

- Touch the workpiece with the electrode.
- Press the torch button to start the pre-gas phase.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc with the pre-set dynamics. The arc remains ignited if the torch button is released.
- Releasing the button before completion of the dynamics extinguishes the arc immediately.
- Press the button again to extinguish the arc with the arc extinguishing dynamics. Gas continues to flow for the post-gas time.
- Releasing the button before the end of the shutdown sequences extinguishes the arc immediately.

6.7.2 Setup parameter list (unit configuration)

`diS` **Type of measure**

Allows the welding current or voltage reading to be set on the display.

`Hod` **Hold Last Parameter**

If active, the values of the last welding parameters will be shown on the display for five seconds after the arc is extinguished.

`Fn` **System configuration menu**

Allows access to the system configuration menu.

- Press the encoder button to access the submenu.
- Turn the encoder to select the desired configuration.
- Press the encoder button to confirm.
- The available configurations are as follows.

`F1` **System configuration**

System configuration: F1

- MMA welding process
- TIG LIFT welding process
- Function enabled: Hot start
- Function enabled: Arc force

`F2` **System configuration**

System configuration: F2

- MMA welding process
- TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: Hot start
- Function enabled: Arc force

`F3` **System configuration**

System configuration: F3

- MMA welding process
- TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: Hot start
- Function enabled: Arc force
- Function enabled: Synergic programs

`F4` **System configuration**

System configuration: F4

- MMA welding process
- Pulsed MMA welding process
- TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: Hot start
- Function enabled: Arc force
- Function enabled: Synergic programs

F5 **System configuration**

System configuration: F5

- MMA welding process
- Pulsed MMA welding process
- TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: Hot start
- Function enabled: Arc force
- Function enabled: Programs (JOB POINT)
- Function enabled: Synergic programs

SLP **Sleep**

If active, the machine switches off after the selected seconds of inactivity.
Set a time value within the range

Value	Inactive time
OFF	Not active
180	180s
300	300s
600	600s
900	900s

Ser **Scheduled maintenance**

If active, illumination of the maintenance symbol on the display indicates that maintenance is recommended.

rSt **Reset**

Allows you to reset all the parameters to the default values.

- ▸ Press the encoder button to start the procedure.
- ▸ Turn the encoder to the value: ON
- ▸ Press the right function key for 5 seconds.